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# POST-FLEDGING BEHAVIOR OF AMERICAN KESTRELS IN CENTRAL KENTUCKY

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ABSTRACT.—Observations on the post-fledging behavior of fledglings from 2 nests of American Kestrels (*Falco sparverius*) were collected during 1983 in central Kentucky. At nest 1, fledglings remained within 100 m of the nest during the first 14 days postfledging. From the 14th to 24th day postfledging they remained within 350 m of their natal nest and after their 24th day postfledging they traveled to areas outside their parents' hunting area. They migrated in at least 2 groups after the 27th day postfledging. At nest 2, fledglings followed their parents immediately after fledging. They spent most of their time 250 m NW and 500 m N of their natal nest. Juveniles from nest 2 were observed with their parents up to 75 days postfledging. Differences between the behavior of the fledglings from those nests may be associated with differences in prey abundance, or parental behavior (possibly associated with a second nesting attempt by the adults at nest 1).

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Conducta del Cernicalo Americano joven, inmediata a su primer vuelo, en Kentucky central

EXTRACTO.—Observaciones de la conducta de Cernícalos Americanos (*Falco sparverius*) tiernos, recién emplumados y neófitos en el vuelo, fueron realizadas en dos nidos durante 1983 en Kentucky central. En el nido no. 1 los cernícalos tiernos permanecieron dentro de los 100 metros de distancia del nido durante los primeros 14 días de haberlo dejado. Desde el día 14 hasta el día 24 de la experiencia de vuelo, estos cernícalos permanecieron dentro de 350 metros de distancia de su nido, y después del día 24, ellos viajaban a áreas que estaban fuera de la que, para cazar, usaban sus padres. Ellos migraron en por lo menos dos grupos después del día 27 de su primer vuelo. En el nido no. 2, los cernícalos tiernos siguieron a sus padres inmediatamente después de haber dejado el nido. Ellos pasaron la mayor parte de su tiempo a 250 m al Noroeste y a 500 m al Norte de su nido. Estos jóvenes cernícalos fueron vistos junto a sus padres hasta 75 días después de haber dejado el nido. Las diferencias entre la conducta de estas aves de los nidos observados, pueden estar relacionadas con las diferencias en la abundancia de posibles presas o con la conducta de los padres (probablemente relacionada con una segunda posibilidad para anidar de los adultos del nido no. 1).

[Traducción de Eudoxio Paredes-Ruiz]

The American Kestrel (*Falco sparverius*) is a fairly common and easily studied raptor. Yet detailed information concerning its post-fledging biology is limited. Sherman (1913) published some observations on post-fledging movements of individual kestrels from one nest. Balgooyen (1976) published a generalized account on activities of recently fledged American Kestrels in the Sierra Nevada of California. Lett and Bird (1987) reported observations on fledglings from three families of kestrels focusing on perch selection, flight quality and social interactions. Finally, Bird (1988) reviewed aspects of post-nesting dependency and duration of family bonds in American Kestrels.

I report observations on movements, and behavior of recently fledged American Kestrels in central Kentucky. Observations were made on the Central Kentucky Wildlife Management Area located 17 km SSE of Richmond, in Madison Co., Kentucky. Vegetation on the area is characterized by expansive open areas alternating with fencerows, small thickets and fields. Elevation ranges from 287 to 310 m above sea level.

Nine fledglings from two nest boxes located on barns were observed during spring and summer of 1983. Five young (2 males and 3 females) fledged from nest 1 and were observed from 20 May to 23 June, and 4 young (3 males and 1 female) fledged from nest 2 and were observed from 10 June to 28 August. At nest 1, radio transmitters (MPB-LD-1220, Wildlife Materials Inc., Carbondale, Illinois) were affixed to the backs of a male and female kestrel

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five days prior to fledging, using a backpack mount (Dunstan 1972) constructed of braided nylon. The total transmitter package weighed less than 6 grams. I attempted to locate the transmitter-equipped individuals (hereafter referred to as male T and female T) every day after they fledged except for their 20–23rd d after fledging. Observations were not restricted to transmitter-equipped birds but included siblings whenever possible. Observations of fledglings from nest 2 were made every 3–5 d. Vegetation on the area occupied by juveniles from nest 2 made observation difficult. However, juveniles were often located in the vicinity of their parents who were fitted with transmitters. Most observations were made between 0900 and 1700 H. All locations were plotted on a topographic map (scale 1 cm : 122 m). Distances of those locations from the nest were calculated to the nearest 1 m.

During the first 14 d after fledging all 5 juveniles at nest 1 remained within 100 m of the nest and moved little. They often perched in the same tree or within a few meters of each other on telephone wires and spent up to 2 h on such perches without moving more than 3 m. After the 14th d, juveniles from nest 1 extended their area of activity by approximately 250 m. They frequented a barn in which their parents were renesting (353 m west of the original nest). Up to the 24th d after fledging, juveniles were usually observed within 100 m of the nest or the barn in which their own parents were renesting. The one exception is as follows: on the 17th d after fledging, male T traveled 1.1 km NNE from his nest. He encountered a group of 4 recently fledged kestrels (none of which were banded as were his siblings) and perched within approximately 30 m of them. When an adult female kestrel flew toward that group with a microtine rodent, male T flew towards her. He was immediately chased from the area by an unmarked adult male who stooped on him. Immediately after the stoop, the juvenile returned to the vicinity of his natal nest.

Following their 24th d, juveniles at nest 1 became less cohesive and began traveling to areas more distant from their parents' nests. On the 25th d, the group split into at least two subgroups; male T was approximately 350 m NNE of the nest while female T was 250 m NNW of the nest. At 0810 H the next day, 5 juveniles, including male and female T, were 100 m south of the nest. They traveled 1.3 km to the southwest where they joined a group of five juvenile kestrels at 1055 H. They hunted together with this group for 35 min, then returned to the vicinity of nest 1. At 1141 H the next day, male T and two juvenile females returned and again joined five juveniles to hunt for at least 35 min. No aggression was observed between individuals of the two groups on either occasion, even though members intermixed and perched together on utility wires with an interkestrel distance of only 1 to 3 m. Female T was not present during the second meeting.

Female T and one juvenile male were last seen at 0900 H on the 27th d after fledging. Male T and two females remained in the area for 4 more days and hunted together 850 m south of the nest, an area outside the range of both parents. I observed those juveniles last on the evening of the 31st d after fledging. Two days later the adults' second nest failed and the adult female disappeared. The adult male was observed for 4 more days.

I observed what could be interpreted as play behavior only once. On the 11th d after fledging, at 1500 H a juvenile male and female (without transmitters) were observed for 15 min alternately circling and diving at one another without contact. The first attempts at prey capture were observed on the 6th and 7th d after fledging. On the 6th d I observed a juvenile (sex unknown) dive 5 m into tall grass. On the 7th d after fledging, I witnessed an unsuccessful attack by a juvenile male toward an adult male Red-Winged Blackbird (*Agelaius phoeniceus*). The first observed prey captured were invertebrates (probably grasshoppers) on the 25th d after fledging.

I located roosting sites on 4 occasions. On the fourth night after fledging, male and female T roosted in Eastern Red-cedar (*Juniperus virginiana*) trees 60 m northwest of the nest. On the 15th night after fledging, female T roosted in tall deciduous trees 300 m east of the nest barn. On the 30th d after fledging, male T either used that same deciduous tree 300 m east of the barn or one very close by. Finally, on his last night in the area, male T used an Eastern Red-cedar 60 m west of his nest although he had foraged 0.8 km to the southeast during that day.

Four young fledged from nest 2 but only three were observed after the 4th d. Those three followed their parents immediately after fledging. During 26 d of observation between 15 June and 28 August 1983 I always found at least one juvenile with the adults. During that period they ranged from as close as 48 m E of their natal nest (observed this close only once, 30 days after fledging) to as far as 853 m to the NE. However, most of their time was spent

in areas 250 m NW and 500 m N of their nest. Since those juveniles were not equipped with transmitters, I cannot be certain of their range.

The two groups of juvenile kestrels differed strikingly in their movements. The first group remained close to their natal nest during the first 24 d after fledging, the second group left the vicinity of their nest and traveled over their parents' hunting range soon after fledging. Those differences in movements may be due to variation in prey abundance for the two nesting areas, differences in parental care associated with the renesting attempt of the parents at nest 1, or a combination of both factors. Groups of foraging kestrels composed of fledglings from more than one nest were observed on two occasions. Other investigators have reported similar groups of kestrels (e.g., Berger and Mueller 1959, Lett and Bird 1987), and mixed species groups (e.g., Cade 1955).

The two groups of fledglings differed with respect to onset of migration. One group left their natal area in the early summer independent of the adults while the other group remained with the adults late into the summer. Sherrod (1983) speculated that there is great variation in the tendency of Peregrine Falcons (*Falco peregrinus*) to migrate as a family group and I suspect the same may be true for American Kestrels. Some kestrels may remain together for as little as three weeks (e.g., Smith et al. 1972), and migrate separately from adults (e.g., Balgooyen 1976). On the other hand, some evidence suggests that kestrels migrate as a family group (e.g., Cade 1955, Sherrod 1983).

Juvenile kestrels alternated use of roosts on a daily basis. I also found that boxes were not used after kestrels fledged. In contrast, Balgooyen (1976) found that juveniles and adults often returned to the nest cavity after young fledged. In central Kentucky, kestrels experience heavy predation within nest boxes (53.5% predation for nestlings overall and 12.5 and 25.0% for adults in 1985 and 1987 respectively; Kellner and Ritchison 1988). After young fledge, kestrels may avoid using nest boxes as roost sites in order to avoid predation.

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